

## Patent claims

1. Transmission system having:
  - a signal source which has an internal  
5 resistance;
  - a signal transmission line (102), one end of  
which is connected to the signal source; and
  - a terminating resistance which is connected to  
another end of the signal transmission line  
10 (102),  
the internal resistance of the signal source and  
the terminating resistance being complex and being  
chosen such that frequency-dependent signal  
attenuation in the transmission system is reduced  
15 in a frequency range which contains the  
frequencies of signals which are produced by the  
signal source.
2. Transmission system according to claim 1,  
20 characterized  
in that the frequencies of the signals produced by  
the signal source are in a lower frequency range.
3. Transmission system according to claim 1 or 2,  
25 characterized  
in that the internal resistance of the signal  
source and the terminating resistance have a  
complex resistance (114, 116; 114, 118, 120) which  
comprises a series circuit comprising a real  
30 resistance (114) and an inductance (116) or  
comprises a series circuit comprising a real  
resistance (114) and a parallel circuit comprising  
an inductance (120) and a capacitance (118).
- 35 4. Transmission system according to claim 1, 2 or 3,  
characterized  
in that the internal resistance of the signal  
source and the terminating resistance are chosen

independently of the transmission bandwidth of the signal transmission line (102) and/or the symbol rate of the transmitted signals.

- 5     5.    Transmission system according to one of the preceding claims, characterized  
in that the signal transmission line (102) has a great length and/or high signal attenuation.
- 10     6.    Transmission system according to one of the preceding claims, characterized  
in that the internal resistance of the signal  
15    source and the terminating resistance can be set in the transmission system on the basis of the frequencies and/or the symbol rate of the transmitted signals.
- 20     7.    Transmission system according to one of the preceding claims, characterized  
in that the transmission system also has  
25    transformers (104, 106) which couple the signal source and the terminating resistance to the signal transmission line (102).
- 30     8.    Transmission system according to one of claims 2 to 7, characterized  
in that the transmission system is an ISDN  
transmission system, and the lower frequency range contains frequencies of below 40 kHz.
- 35     9.    Transmission system according to one of the preceding claims, characterized

in that the transmission system is an ISDN transmission system, and the real resistance has a value of  $135 \Omega$  and the inductance has a value of 2.7 mH.

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10. Transmission system according to one of the preceding claims,  
characterized

10. in that the signal transmission line is an ISDN signal transmission line which has a length of between 6 and 7 km.